


ATTACHMENT NO. 27

Revised Dust Control Plan

	Title: Coal Combustion Residuals and Agremax Dust Control Plan		Doc #: SOP-CCP-004	Prepared by: Eitel Figueroa	AES Puerto Rico Guayama, PR	Page: i of 20
	Reviewed by: Carlos M. Gonzalez	Area: CCP Area	Effective Date:	Review Date:	Rev #: 2	

## **Title:**


Coal Combustion Residuals and Agremax™ Dust Control Plan

## **Approvals:**

	Signature	Date
<u>Approved by:</u>		
Manuel Mata Plant Manager	_____	_____
<u>Reviewed by:</u>		
Carlos M. Gonzalez CCP Team Leader	_____	_____
Hector Avila Environmental Coordinator	_____	_____
Elias Sostre Operations Manager	_____	_____


## **Distribution List:**

1. CCP Area
2. Material Handling
3. Environmental Coordinator
4. Operations & Maintenance Area
5. Plant Manager

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## 1 Purpose

This Standard Operating Procedure (SOP) identifies methods to prevent, reduce or mitigate fugitive dust from the coal combustion residuals (CCRs) and Agremax™ handling activities at the AES-PR site.


The primary purpose of this SOP is to explain how the requirements in Section 2.1.2.12 of the US Environmental Protection Agency's (EPA) 2015 Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity (2015 MSGP) - Dust Generation and Vehicle Tracking of Industrial Materials; and the Standards for the Disposal of Coal Combustion Residuals from Electric Utilities (CCR Rule) of April 17, 2015 will be implemented and monitored at AES-PR.<sup>1</sup>

## 2 Scope

The Coal Combustion Residuals and Agremax™ Dust Control Plan (Plan) described in this SOP addresses fugitive dust emissions ( i.e., emitted from any source other than a stack or chimney) from coal combustion residuals (ash) and Agremax™ handling equipment and operations which are non-point sources and area sources within the AES-PR property boundaries as shown in Appendix 1. It does not address particulate or gaseous emissions from point or other sources regulated under the facility's air emission permit issued in accordance with the provisions of Part VI of the Regulation for the Control of Atmospheric Pollution (RCAP) and the Code of Federal Regulations, Title 40 Part 70.

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<sup>1</sup> AES Puerto Rico's temporary storage of its inventory of manufactured aggregate is not subject to the CCR Rule, 40 C.F.R. Part 257. Nonetheless, as a protective measure, AES Puerto Rico has prepared this Plan and taken other steps to satisfy CCR Rule requirements applicable to CCR landfills. By undertaking these measures, AES Puerto Rico does not admit its facility is a CCR landfill covered by the CCR Rule and expressly preserves all rights and defenses.

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It identifies sources of fugitive dust, outlines the techniques and practices for detecting, monitoring, controlling, minimizing and preventing dust emissions, provides procedures to handle citizen complaints, employee training program guidelines to help them recognize potential sources of dust and the management practices to prevent and control them, identifies the persons and procedures responsible for control equipment availability / operation and maintenance and identifies the inspection / recordkeeping / reporting / notification practices that will be followed.

### 3 Responsibilities

- The AES-PR Coal Combustion Products (CCP) and Material Handling (MH) leaders are the dust control site coordinators responsible for the implementation of this SOP, including: reading and understanding it, ensuring that all employees / workers / subcontractors know and understand their dust control responsibilities, monitoring the worksite for compliance with the requirements of this SOP, designing watering schedules, ensuring that adequate watering capability is available, determining when to use standby controls when primary controls are ineffective, determining when to cease and start operations, maintaining records and revising the SOP as necessary, including when the primary and standby or contingency controls don't result in effective control.
- The Shift Team Leaders and the CCP/MH Operators are responsible for controlling their operational areas to minimize dust generation. This includes limiting or stopping operations during high winds and/or visible dust plume conditions that cannot be controlled.
- The CPH/MH Operators are responsible for enforcing the requirements of this SOP and notifying the dust control site coordinator or Shift Team Leader of any visible dust plumes which require immediate attention, including those that cross the site boundary. The

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operational activity that caused the emission will be ceased temporarily until a re-evaluation of the dust control measures is completed and additional controls are identified and implemented, if needed.

- All dust control equipment i.e., water truck, vacuum truck, sprinklers, hoses, will be maintained in good operational order by the responsible areas. The water truck will be the responsibility of MH, the vacuum truck by CCP; all other controls will be the responsibility of the Maintenance Area. Each area will document and maintain records of how frequently equipment maintenance is done and of all equipment malfunctions and downtimes.

#### 4 Safety Precautions

All AES-PR employees and contractors must use the safety and personal protective equipment required for conducting the activities described herein, including but not limited to hard hats, safety glasses, harness, life preservers and other, as appropriate.


#### 5 Dust Emission Sources

The potential dust emission sources covered by this Plan are located at the southeast quadrant of the plant site and the marine dock. See Appendix 1.

Fly ash and bottom ash are produced by the coal combustion process and stored in two elevated silos. The dry ash is transferred from the silos directly into totally-enclosed bulk trailers for transport by public highway to off-site users.

Agremax™ is a manufactured aggregate produced by AES-PR using its own CCRs. Dry ashes that are not delivered to off-site users are mixed in a pug mill conditions this CCR to produce




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Agremax™ with enough moisture to prevent wind dispersal without producing free liquids before feeding a conveyor belt used to transfer the mixture to an open stockpile area where it is also kept wet by the application of water sufficient to prevent dispersal by wind (without producing free liquids) before feeding a conveyor belt used to transfer the mixture to an open Stockpile Area at the facility where it is also kept wet by the application of water sufficient to prevent dispersal by wind (without producing free liquids) before it is spread by a bulldozer. A stockpile<sup>2</sup> to store the inventory of Agremax™ is formed by a bulldozer or by dump trucks that are loaded with Agremax™ by an excavator or front-end loader, and the trucks then place the Agremax™ onto a stockpile. From the Stockpile Area, the Agremax™ is loaded by an excavator or front-end loader into dump trucks, covered, and sent for transport by public highway to off-site users or for disposal. Alternatively, the Agremax™ can be fed by a bulldozer into a crusher located in the Stockpile Area. The crusher feeds an enclosed conveyor to transfer the Agremax™ to marine vessels in the dock area for shipment overseas. Dust can be generated from the ash-Agremax™ transfer operations, truck loading and unloading, crusher loading, from paved and unpaved haul roads within the site, and from the Stockpile Area.

## 6 Controls

The main equipment and structures used for controlling dust emissions include a water truck with rear spray nozzles and front water cannon, a vacuum truck, mobile water sprinkler guns, large water hoses, fixed water spray nozzle systems / articulated telescoping spouts at drop and loading / shipping areas, a truck wheel cleaning station and curved- paved haul roads.


<sup>2</sup> AES-PR currently maintains two separate Agremax™ stockpiles. These two stockpiles are located in the Stockpile Area behind the plant. One stockpile includes the Agremax™ inventory produced and stored before October 17, 2015. The second stockpile has Agremax™ inventory produced on or after October 17, 2015. Each stockpile will be covered by this SOP.

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In addition to the use of the equipment and structures described above, primary (first approach) and contingency (standby or backup strategy) control measures are used to control the generation of dust emissions. Refer to the flowchart in Appendix 2.

Primary controls include initial and annual personnel training, a daily operational inspection checklist to monitor the implementation and effectiveness of the control measures, daily evaluation of weather forecast and real-time instrumental monitoring of weather conditions (precipitation, wind speed-direction [refer to AES Rainfall Data Collection Management & Recordkeeping Procedure. SOP-Eng-002]), daily nighttime watering of stockpile surfaces and pre-shift watering of haul roads, daily log of water truck use, covered transfer conveyors, continuous observation of visible dust emissions (VDE), daily hosing / cleaning of paved roads, maintenance / repair of paved road surfaces, immediate cleanup of track-out and material spillage onto paved roads, prohibited use of blower devices or dry rotary brushes or brooms, enforcement of posted vehicle and moving equipment speed limits to 10 miles per hour (mph) or less , traffic restrictions, minimization of drop distances at transfer points, loading of trucks to prevent their contents from dropping/leaking/ blowing or otherwise escaping, sweeping or spray-cleaning and covering dump trucks prior to leaving the facility, 6-inch minimum bed freeboard clearance requirements for loading dump trucks, surface roughening-compaction of stockpile surfaces, placing stockpile ridges at right angles to prevailing winds, conducting loading and unloading activities on the downwind side of a stockpile, watering of exposed areas before forecasted high winds, restriction or termination of a stockpile disturbance and hauling activities during high-wind conditions (i.e., 25 miles per hour or higher) and scheduled washing of mobile equipment.

At the start of each shift or material handling equipment startup and at least twice daily, the CPH/MH Operators will assess the operational status of all controls and record such assessments using the Dust Control Inspection Checklist in Appendix 3 which will be used to

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monitor the implementation and effectiveness of the control measures. Water truck operations may be curtailed during wet weather if the CPH/MH Operators confirm that the Agremax™ is sufficiently wet as to not require further wet abatement (one inch of precipitation is equivalent to an application of 5.6 gallons of water per square yard). These determinations will also be recorded in the Dust Control Inspection Checklist.

If after the implementation of primary control measures, visible dust emissions persist, contingency control measures including daytime wetting of the stockpiles with sprinklers, applying chemical dust suppressants, surfacing of unpaved haul roads with aggregate cover / aprons and restriction / termination of activities will be implemented. Because the control effectiveness of chemical dust suppressants depends on the dilution rate, the application rate, time between applications, size/speed / amount of traffic and meteorological conditions any chemical dust suppressants used will be applied according to the manufacturer's instructions. If primary and contingency controls don't result in effective control, this SOP must be revised.


The dust type / source and the primary control measures used for each source can be described as follows:

### 6.1 Agremax™ and Ash in Paved Haul Roads

Description: Emissions can be generated from uncovered truck beds, spillage from haul trucks, vehicle dust carryout and track out. Wind and traffic, including plant (front end loaders, trucks and trailers) and customer vehicles, re-suspend the deposited material creating secondary sources of dust emissions. The average vehicle weight is highly variable, ranging from small pick-up trucks (1 ton) to large trucks / trailers (30 tons).

Control Methods and Equipment: Wet suppression by water truck with rear water sprinklers and water cannon, daily pavement cleaning with water hoses and vacuum truck, speed limit



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restrictions to 10 mph or less posted along haul route, immediate cleanup of material spillages, dump truck freeboard / cover, wheel washing and hosing at fixed station, curved shoulders and pavement surface repair as needed.

Frequency of Application: At the beginning of the work shift, whenever fugitive dust plumes are observed and as required to keep road surfaces wet, clean and structurally sound.

Monitoring: Twice Daily

Recordkeeping: Dust Control Inspection Checklist

## 6.2 Agremax™ in Stockpile Roads


Description: Emissions can be generated from wind erosion of uncovered truck beds and road surfaces and heavy equipment traffic (bulldozer, excavator, front end loader, trucks and trailers).

Control Methods and Equipment: Daytime wet suppression by water truck with rear water nozzles and water cannon, vehicle speed limits to 10 mph or less, dump truck freeboard / cover.

Frequency of Application: At the beginning of the work shift, whenever fugitive dust plumes are observed and as required to keep road surfaces wet.

Monitoring: Twice Daily

Recordkeeping: Dust Control Inspection Checklist

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### 6.3 Agremax™ in Stockpile

Description: Agremax™ is a cementitious aggregate material which forms a surface crust resulting in limited fugitive dust emissions when stored. Emissions may be generated from the initial Agremax™ conveyor drop discharge into the Stockpile Area, pushing by heavy equipment to create a stockpile, loading and unloading of dump trucks to remove or add Agremax™ to a stockpile and for off-site transportation, pushing Agremax™ into the crusher feeding the conveyor to the dock and from wind erosion of stockpile surfaces.


Control Methods and Equipment: Nighttime wet suppression of stockpile surfaces by mobile sprinkler guns (10), daytime wet suppression of stockpile surfaces by water truck with water cannon, fixed water spray nozzles at conveyor drop discharge point, reduced drop heights for truck loading, hose wetting of crusher feed and dump truck unloading, surface roughening - compaction of stockpile surfaces with bulldozer, stockpile ridges at right angles to prevailing winds, confining loading and unloading to downwind side of stockpile, watering of exposed areas before forecasted high winds. Windbreaks and enclosures are not practical controls for the Stockpile Area because of its size and continuous change in shape.

Frequency of Application: At the beginning of the work shift, and as required to keep stockpile surfaces crusted.

Monitoring: Twice Daily

Recordkeeping: Dust Control Inspection Checklist



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#### 6.4 Ash Transfer to Bulk Trailers

Description: Fugitive dust emissions may be generated during the chute connection and disconnection steps required for loading ash from the elevated storage silos into bulk trailers for off-site transportation.

Control Methods and Equipment: Discharge drop height control using articulated- telescopic loading spout, enclosed loading area, wet suppression with water spray nozzles at west side of loading bay, truck- trailer cleaning with water hose before leaving the loading bay.

Frequency of Application: Each loading

Monitoring: Twice Daily

Recordkeeping: Dust Control Inspection Checklist

#### 6.5 Agremax™ Dump Truck Loading and Unloading


Description: Dust emissions may be generated during the loading of Agremax™ into dump trucks to create a stockpile or for off-site transportation and during unloading of dump trucks into a stockpile.

Control Methods and Equipment: Daytime wet suppression by water truck with rear water nozzles and water cannon or large hoses, front end loader and excavator discharge drop height reduction.

Frequency of Application: Each loading

Monitoring: Twice Daily

Recordkeeping: Dust Control Inspection Checklist

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## 6.6 Agremax™ Conveyor Loading and Transfer

Description: Dust emissions can be generated by wind blowing over the elevated conveyor used to transfer Agremax™ to marine vessels at the dock area and when it is discharged into the vessel's holding compartment.

Control Methods and Equipment: Covered conveyors, discharge drop height control with articulated- telescopic loading spout.


Frequency of Application: Each loading

Monitoring: Twice Daily (During Vessel Loading)

Recordkeeping: Dust Control Inspection Checklist

## 7 Citizen Complaints and Corrective Actions


Citizen complaints claiming CCR fugitive dust events at AES-PR will be documented using the Citizen Complaints Log in Appendix 4 so they can be investigated by the Environmental staff. Because CCR dust events may be short-term and visual observations will probably be required, expeditious attention will be provided to these events. If the origin of the complaint is determined to be due to CCR fugitive dust, then corrective and follow-up actions will be identified and included in the Log. This Log of Citizen complaints and a summary of corrective actions taken, if any, will be kept for use in the preparation of the Annual Fugitive Dust Control Report described below.

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## 8 Training

To ensure that the dust control practices are followed, AES-PR will conduct an employee awareness training that will include all applicable dust control measures and the importance of compliance. Records of the trainings will be maintained, including the sign-in sheets.

- The designated employees and/or contractors responsible for the performance and/or supervision of dust control activities must receive initial and yearly classroom and hands-on training on this SOP.
- Training in the requirements of this SOP will be provided prior to commencing duties at the affected areas and at least every year following the Training Syllabus in Appendix 5.
- All trainings will be documented using the Employee Training Attendance Log in Appendix 6.

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## 9 Inspections, Reports and Corrective Actions

In addition to the twice-daily inspections described above, AES-PR will perform weekly inspections by a qualified person to identify conditions with the potential to disrupt operations or safety of the CCR inventory stored in the Stockpile Area. The inspections will be documented using the form in Appendix 7.

AES-PR will prepare an Annual CCR Fugitive Dust Control Report that includes the following:


- Descriptions of actions taken to control CCR fugitive dust
- A record of all citizen complaints and a summary of any corrective actions taken

Finally, AES-PR will engage a qualified professional engineer to prepare an Annual Inspection Report addressing geometry changes, approximate volume, structural weaknesses, existing conditions and any other changes that can disrupt the Stockpile's operation, safety or stability.

## 10 Recordkeeping

All versions of this Plan, the annual CCR Fugitive Dust Control Reports, documentation detailing corrective measures, weekly and annual inspections will be kept in the facility's operating record as they become available.


All information related to this SOP will be kept for three years after the expiration of the site's industrial storm water discharge permit under the 2015 MSGP or five years following the date on which it was prepared, whichever is later.

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## 11 Internet Requirements and Notifications

AES-PR will ensure the Puerto Rico Environmental Quality Board is notified of the availability of the Plan, including any subsequent amendments, and of the availability of the Annual CCR Fugitive Dust Control Report, as provided in the CCR Rule. AES-PR will also ensure the most recent version of the Plan and Annual CCR Fugitive Dust Control Report is posted on a publicly-accessible internet site (CCR Web site) for the AES-PR facility, as provided by the CCR Rule.



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## 12 Licensed Professional Engineer Certification

This Dust Control Plan was prepared following the guidelines of 40 CFR 257.80 to cover the needs of the AES Puerto Rico facility located at Km. 142.0 State Road PR-3, Jobos Ward, Guayama, PR.

I, Winston R. Esteves, a Puerto Rico licensed Professional Engineer, certify that:

- I am familiar with the requirements of 40 CFR 257.80;
- I have visited and examined the AES Puerto Rico, facility;
- This Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of the CCR rule;
- Procedures for required inspections have been established; and
- That this Plan is adequate for the facility.

This certification in no way relieves the owner or operator of the facility of the duty to fully implement this Fugitive Dust Control Plan. This Plan is only valid to the extent that the facility owner or operator maintains, tests and inspects controls, equipment, and other devices as prescribed herein. I did not test for proper operation of any equipment, devices, control systems or any other equipment systems not specifically mentioned.



Winston R. Esteves, PE

10/25/18

Date

8827


License Number

8/31/19

License Renewal Date



P.E. Seal

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### 13 Periodic Plan Assessment and Amendments

The effectiveness of this Plan will be assessed to determine if updates or amendments are necessary after reviewing the Annual Fugitive Dust Control Report, the Annual Inspection Report and whenever there is a change in conditions that would substantially affect it e.g. construction and operation of a new CCR unit, significant increases in quantities of CCR managed, changes in CCR handling / storage practices or modifications to CCR handling / storage equipment. All technical amendments to this SOP will be certified by a Professional Engineer.

A record of the amendments made to this SOP is included below.

#### Record of Amendments


Date of Amendment	Amended Sections or Topics	Amendments Made By
---	Original document prepared in August 2015.	---
September 19, 2016	Addition of CCR Rule Provisions for Fugitive Dust.	Winston R. Esteves, PE
October 25, 2018	Addition of alternative BMP for paved roads.	Winston R. Esteves, PE

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## 14 References

- 1- AES Rainfall Data Collection Management & Recordkeeping Procedure. SOP-Eng-002.
- 2- Air & Waste Management Association. Air Pollution Engineering Manual. 2000.
- 3- California Stormwater Quality Association. California Stormwater BMP Handbook- Construction. Wind Erosion Control WE-1. May 2011.
- 4- Noyes Data Corporation. Dust Control Handbook. Pollution Technology Review No. 161. 1988.
- 5- US Department of Health and Human Services. Dust Control Handbook for Industrial Minerals Mining and Processing. January 2012.
- 6- United States Environmental Protection Agency (USEPA). Emission Control Technologies and Emission Factors for Unpaved Road Fugitive Emissions. EPA 625/5-87-022. September 1987.
- 7- USEPA. Control of Open Fugitive Dust Sources. EPA 450/3-88-008. September 1988
- 8- USEPA. AP-42 Compilation of Air Pollutant Emission Factors. Volume 1: Stationary Point and Area Sources. Chapter 13: Miscellaneous Sources. January 1995.
- 9- USEPA. Storm Water Management Fact Sheet- Dust Control EPA 832-F-99-003. September 1999.
- 10- USEPA. Final National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Form Industrial Activities, Federal Register, Vol. 73, No. 189, September 29, 2008.



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11- USEPA. Water: Best Management Practices; Dust Control. Source:

<http://www.epa.gov/polwaste/npdes/swbmp/Dust-C>. Web Page last updated on Tuesday, July 1, 2014; Accessed and printed on March 27, 2015. [4 pages]

12- USEPA. Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities; Final Rule 80 FR 21301-21501. April 17,2015



## Dust Control Checklist

### Control Equipment

Skipper Sprinkler Guns (8)	_____ Operational	_____ Not Operational
Vacuum Truck (1)	_____ Operational	_____ Not Operational
Broom Sweeper (1)	_____ Operational	_____ Not Operational
Large Water Hoses ( )	_____ Available	_____ Not Available

### Paved Haul Roads

Surface in Good Condition	_____ Yes	_____ No
Wet Surfaces	_____ Yes	_____ No
Blowers or Dry Sweeping Used	_____ Yes	_____ No
Visible Emissions	_____ Yes	_____ No
Visible Speed Limit Signs Posted	_____ Yes	_____ No
Spilled Materials	_____ Yes	_____ No
Tracked Sediments	_____ Yes	_____ No
Wheel Washer Station	_____ Yes	_____ No
- Adequate Water level	_____ Yes	_____ No
- Adequate Aggregate Depth	_____ Yes	_____ No
- Aggregate Surface Clean	_____ Yes	_____ No

### Haul Trucks

Within Speed Limits	_____ Yes	_____ No
Within Established Routes	_____ Yes	_____ No
Covered with Tarp	_____ Yes	_____ No



Free of Debris	_____ Yes	_____ No
Adequate Freeboard	_____ Yes	_____ No
Low Loading Drop Height	_____ Yes	_____ No

### **Unpaved Haul Roads**

Wet Surface	_____ Yes	_____ No
Aggregate Cover	_____ Yes	_____ No
Over Watering Observed	_____ Yes	_____ No
Road Erosion Observed	_____ Yes	_____ No
Visible Emissions	_____ Yes	_____ No

### **Conveyors**

Silos to Stockpile Fully Enclosed	_____ Yes	_____ No
Stockpile to Dock Silos Fully Enclosed	_____ Yes	_____ No
Water Applied at Conveyor Drop Point	_____ Yes	_____ No
Water Applied at Crusher Feed	_____ Yes	_____ No
Visible Emissions	_____ Yes	_____ No

### **Fixed Transfer Points**

Silos to Stockpile Water Sprays Operational	_____ Yes	_____ No
Stockpile Crusher Feed Wet	_____ Yes	_____ No
Conveyor to Marine Vessel Telescoping Spout Operational	_____ Yes	_____ No
Silos to Bulk Trailers		



Telescoping Spout Operational \_\_\_\_\_ Yes \_\_\_\_\_ No  
Leak Proof Spout Connection \_\_\_\_\_ Yes \_\_\_\_\_ No  
Ash Silos Water Curtain Operational \_\_\_\_\_ Yes \_\_\_\_\_ No

### **Agremax Stockpile**

Wet Stockpile Surfaces \_\_\_\_\_ Yes \_\_\_\_\_ No  
Water Sprays Overlap \_\_\_\_\_ Yes \_\_\_\_\_ No  
Chemical Dust Suppressants Used \_\_\_\_\_ Yes \_\_\_\_\_ No  
Activities on downwind side \_\_\_\_\_ Yes \_\_\_\_\_ No  
Slope Surface Roughening /Compaction \_\_\_\_\_ Yes \_\_\_\_\_ No  
Ridges at Right Angles to Prevailing Winds \_\_\_\_\_ Yes \_\_\_\_\_ No  
Slope Erosion Observed \_\_\_\_\_ Yes \_\_\_\_\_ No  
Visible Emissions \_\_\_\_\_ Yes \_\_\_\_\_ No

**Wind Speed** \_\_\_\_\_ **Wind Direction** \_\_\_\_\_

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Name / Signature \_\_\_\_\_

Date \_\_\_\_\_ Time \_\_\_\_\_